MIDWESTERN GOVERNORS' CONFERENCE

Investments for the Knowledge-Based Economy

January 2004

2003 MGC Chairman:
Governor Bob Holden
Missouri

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Executive Summary

As Midwestern Governors work to balance state budgets and create more jobs for their states, the Midwestern Governors' Conference (MGC), under the leadership of Missouri Governor Bob Holden, set out to formulate policy recommendations and action steps that would help the region compete in a global economy. Three working groups, made up of members appointed by Midwestern Governors, worked to compile the nine recommendations that will be discussed in this paper. While the recommendations will go into greater detail on the consensus reached by the working groups, two important themes clearly emerged during the working group discussions that encapsulate all of the recommendations. First, the Midwest needs to find ways to work together to "Market the Midwest." The working groups suggested that it is important to promote the Midwest's identity as a knowledge-based economy leader and a desirable place to live. Midwestern states should look beyond what state governments currently do to market each state individually, and partner with regional and state chambers of commerce, economic growth organizations, technology councils, and academic institutions - each of which has significant marketing expertise and budget - to define and launch creative campaigns to promote the Midwest's identity as a knowledge-based economy leader. The Midwest must start marketing now to spread the good word about its programs, services, and vibrant economic development activity.

Second, the MGC should explore the feasibility of implementing the recommendation that the MGC create a non-partisan policy think tank modeled after the Southern Growth Policies Board (SGPB). The SGPB is a non-partisan public policy think tank based in Research Triangle Park, North Carolina formed by Southern Governors in 1971. The Board develops and advances visionary economic development policies by providing a forum for partnership and dialogue among a diverse cross-section of the region's governors, legislators, business and academic leaders, and the economic-and community development sectors. This unique public-private partnership is devoted to strengthening the South's economy and creating the highest possible quality of life. An essential focus of the SGPB's research examines the major drivers for economic development in the South — innovation and technology, globalization, the changing nature of the workforce, and the vital role of the community. The Board provides its members and the region with independent and authoritative research, discussion forums, and pilot projects that define the critical issues shaping the South. The SGPB develops new regional strategies for economic development and identifies best practices to facilitate action. The MGC working groups suggest that a similar organization, serving the thirteen Midwestern states, would prove equally as valuable over the coming decades. The working groups believe that the SGPB has repaid the investment by the partnering states many times over since its inception.

Introduction

Since the turn of the century, state governments have faced extremely challenging financial times. Governors have to make difficult decisions, requiring our governments to do more with fewer resources. At the same time, Governors are trying to ensure our states make a successful transition into the knowledge-based economy.

The national recession's impact on the states' economies has had serious repercussions on state budget conditions and on our labor markets. Job losses are a significant concern throughout the Midwestern states and across the nation. Yet, despite the fact that most states are reeling from the effects of these tough economic times, Governors must continue to look for innovative ways to create jobs for tomorrow. The Midwest must make investments for the knowledge-based economy. The Midwestern workforce must be prepared for the high-tech jobs of the future. The quality of life in urban and rural communities must be enhanced to attract both skilled workers and high-wage paying companies. Businesses must embrace technological advances to remain competitive in a global economy.

As Chairman of the Midwestern Governors' Conference (MGC), Missouri Governor Bob Holden chose to make "Investments for the Knowledge-Based Economy" his agenda for 2003. He asked that each Governor appoint representatives to three working groups. These working groups, as described below, were tasked with researching best practices and then forwarding recommendations to the MGC. The working groups met in Indianapolis in August 2003 and in St. Louis in November 2003. In addition, the working groups held numerous conference calls to formalize and finalize the recommendations in this report.

Enhancing Education and Workforce Skills

This working group formulated policy recommendations aimed at helping the states equip workers and students with the knowledge and skills they need to compete in the workplace of tomorrow. Study topics included:

- Literacy and Numeracy
- Knowledge Jobs and Worker Migration
- Partnerships in the Identification of Skill Sets and Skill Gaps

This group was chaired by Dr. Dan Ash, the executive director of Metropolitan College in Louisville, Kentucky.

Increasing Research and Accelerating Commercialization Capacity

This working group formulated policy recommendations aimed at helping the Midwestern states capitalize on new technologies and the commercialization of research developed with higher education institutions. Study topics included:

- Connecting the Economic Development Mission and Higher Education
- Increasing Federal Research Funding for the States
- Forming Research and Education Alliances to Increase Commercialization

This working group was co-chaired by Jonathan Holifield, the executive director of CincyTechUSA, in Cincinnati, Ohio, and Dr. Prem Paul, Vice Chancellor for Research, at the University of Nebraska, Lincoln.

Targeting Knowledge-Intensive Industries

This working group formulated policy recommendations aimed at helping the states identify knowledge-based topic industries and build upon successful industry clusters. Study topics included:

- Business, Education, and Government Partnerships
- Local, State, and Regional Competitive Advantages

This working group was led by Dr. Gary Thomas, Chancellor, University of Missouri – Rolla.

The Recommendations

Enhancing Education and Workforce Skills

The role of education in the workplace is fundamental to a healthy economy. Education, training, and jobs repeatedly appear at or near the top of polls as the focus of public policy. For instance, in September 2003, the Committee for Education Funding (CEF) found that "American adults chose education as the most important federal spending priority this year." Equally as important, 85 percent of respondents "cited 'wanting today's students from preschool through college to have the same or better opportunities as previous generations' as a reason to increase federal funding for education."

Yet, the path to achieving an optimal relationship between education, training, and work continues to elude us. There is a fundamental question we must ask if we hope to succeed in finding and pioneering this path: how can education best equip the workers of tomorrow with the skills they need so that they have the same or better opportunities than previous generations?

This report reflects the future challenges the Midwest faces in our attempt to seek the benefits of education and training to develop and continually adapt to the skills for the knowledge economy. In addition, this report identifies the challenges we confront as a geographic region and to provide a vision of potential solutions.

Recommendation 1: Leverage discretionary funding streams to enhance literacy and numeracy and provide meaningful paths for pursuit of career goals.

Literacy and Numeracy

Education and training, more than any other factors, contribute positively to the well-being of families, the strength of communities, and the economic growth of states. An individual's educational level directly relates to his or her ability to achieve economic self-sufficiency, to create a home environment that nurtures the educational development of children, and to participate in the community as an informed citizen.

Fundamental to the benefits of education and training, literacy and numeracy (quantitative literacy) deserve a central focus for the future of workers in the knowledge-based economy. The common and accepted definition of numeracy is from the 1982 UK Cookcroft Report. It defines numeracy as "the ability to cope confidently with the mathematical demands of

everyday life in the home, workplace and community." (Literacy and numeracy 1982) are categorized into five levels.

Adults who lack basic literacy and numeracy skills are at greater risk of being unemployed, are not prepared to pursue postsecondary education, are more likely to be on public assistance, and are less able to adapt to changing workforce needs demanded by the new knowledge-based economy. Data from the National Adult Literacy Survey indicate that "as literacy skill level increases from NALS Level 1 to Level 5, so did earnings—even within groups of people who had the same educational credentials at every level of education, annual earnings increase as literacy level increases. To reach levels of income adequate for viable family support, individuals need to obtain both educational credentials and high levels of skills" (Building a Level Playing Field Comings, Reder & Sum, 2001). In addition, adults with higher levels of literacy skills are more likely to vote, read the newspaper, and participate in community organizations. Children of literate parents are more likely to do well in school, since there is a "strong relationship between parents' education and the literacy skill level demonstrated by their children in adulthood" (Comings, et al, 2001).

Fortunately, literacy skills in the Midwest are slightly higher than in other regions of the United States. However, according to *Literacy in the Labor Force* (1999), the analysis of NALS data completed by the National Center for Education Statistics, these advantages are misleading. The Midwest has substantially fewer full-time workers in Level 1, the most fundamental level of literacy, partially as a result of having fewer immigrant workers compared to other regions. The extensive difficulties faced by other regions have yet to be dealt with in full force in the Midwest. In fact, many Midwestern states face a critical challenge. Data from three states in the region illustrate the substantial gap between where we are today and the progress we need to make in the future. For example, between 1.3 to 1.5 million Ohioans scored in the lowest literacy level assessed on the Ohio Adult Literacy Survey conducted by Educational Testing Service in 1992. These individuals are unable to consistently perform functions such as locating an intersection on a map, writing a brief letter explaining an error in a bill, identifying and entering information on an application for Social Security, and determining the difference in price between two items.

Similarly, the Kentucky Adult Literacy Survey (1997) revealed that 14 percent of the population (approximately 340,000 Kentuckians) "...lack the minimal skills needed to function effectively in the marketplace, in the workplace, the home, and the community." Missouri, which has met the federal performance requirements in Adult Education and Literacy, still must address the needs of 960,000 adults (17.2 percent of the adult population) who have not completed high school and are not in school according to Year 2000 Census data. This gap is underscored by the

fact that less than ten percent of the adults that need to improve their basic skills are being served in the Midwest. It is likely that this number will increase with future increases in the immigrant population throughout the region.

Action Item: Establish a Midwest Literacy/Numeracy Taskforce.

Advances in literacy represent the backbone and foundation of all beneficial effects on the workforce skills of the Midwest. Governors in the Midwestern states should initiate a comprehensive effort to establish the most efficacious models and their associated funding streams to ensure that literacy and numeracy gains are widespread and lasting. A task force made up of experts from each state in the Midwest should be convened to:

- Define what a quality literacy/numeracy program is, determine its funding needs, and identify the potential funding sources to carry out and sustain the programs.
- Conduct a study of programs showing high gains for students and best practices that should be showcased and implemented across the region.
- Define standards and curricula that help adults reach their goals as workers, family members, and citizens.
- Fund teachers to prepare them to pilot test, pilot, and implement high-quality instruction; provide well-supported jobs that will keep them in the field.

***Worth a Closer Look: Kentucky** has established a statewide funding and accountability system that emphasizes learner performance and goal achievement. Kentucky Adult Education (KYAE) has recently reorganized under the Council on Postsecondary Education, which permits greater alignment with postsecondary education. This provides opportunities for additional funding to establish model programs that emphasize moving on to postsecondary and competency-based workforce standards. KYAE has partnered with the Kentucky Community and Technical College System (KCTCS) and Cabinet for Economic Development to serve more potential and incumbent workers.*

*Project Great Start is a new multi-initiative effort to ensure that every child in **Michigan** is prepared to succeed in school and beyond. It is intended to bring a holistic approach to education in Michigan, creating an atmosphere that breeds success in school, out of school, and in the critical years before a child ever enters a classroom. This program is focused on the principle that education begins at birth and that parents play a critical role in this education process. It emphasizes the benefit of reading to children at least 30 minutes each day. Scientific studies point to the dramatic effect early education has on a child's long-term ability to learn.*

<u>Action Item</u>: Explore Alternative Educational Delivery Systems.

Distance learning, when properly conceived with appropriate learner support, can provide educational access previously unavailable. The Midwestern states should seek to capitalize on the use of this technology to improve the accessibility and applicability of technologically delivered educational opportunities.

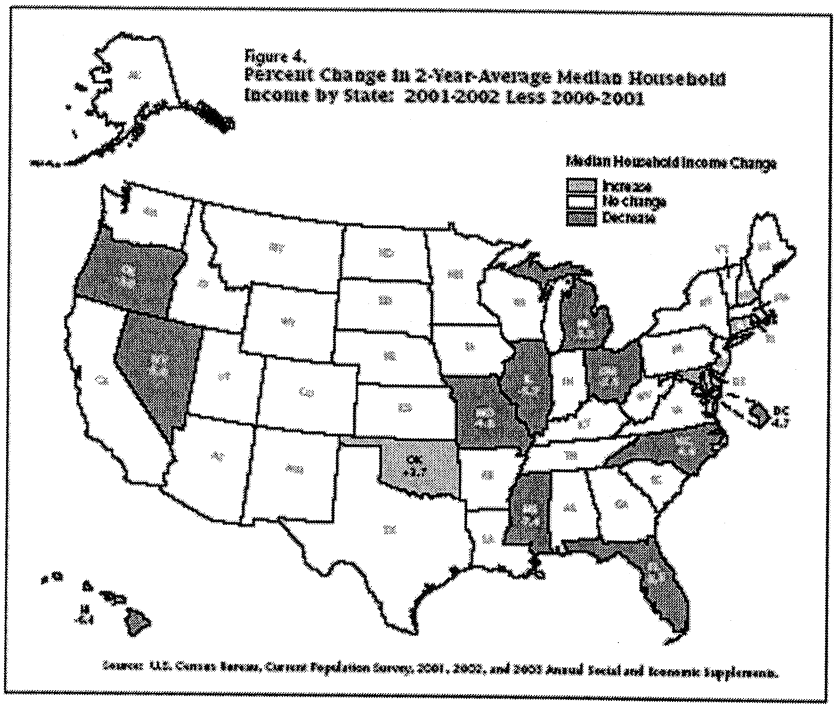
***Worth a Closer Look:* Ohio** *is a leader in this forward looking initiative as one of 13 states taking part in a research initiative, Project Ideal, to explore the feasibility and success of distance learning in adult basic and literacy education and GED instruction. Job schedule conflicts, childcare responsibilities, and transportation difficulties are often cited as factors that prohibit individuals from enrolling or continuing in adult basic and literacy and GED classes. Removing these barriers through a distance instructional option should assist these students in pursuing their educational goals.*

Another prime example of this effort is being carried out in **Missouri**. *Since start of operation, the state's GED Online program has been successful, with a current enrollment of 1,725. Missouri has taken a different approach to distance learning and has provided software and services which allow the online instructor to match instruction with the student's needs. Instead of purchasing one software package and placing all students in that platform, the Missouri GED Online has used the software from SkillsTutor.com, and BLS Tutorsystems for students who need to brush up on their skills. Teachers working with the GED Online Classroom have also placed materials and resources into the Blackboard platform for those students who will soon be ready to take the GED test. These students are working with teacher-made resources and other instructional materials, which are tailored for the GED test. In Fiscal Year 2003, seventy (70) students passed the GED. Attainment of the GED represents a useful alternative to obtaining a high school diploma and serves as a fundamental means of preparing the Midwest for the knowledge-based economy.*

<u>Recommendation 2</u>: Forge more strategically productive, durable relationships between employment sectors and education/training providers.

Low Skill and Low-Income Workers

Illiteracy and low levels of education attainment are at the base of nearly every major challenge facing low skill and low-income workers. They contribute to reduced economic activity, lack of participation in civic and community functions, unproductive employees, and low household per capita income. Yet, these are the workers whose skills will be needed in the future.



This challenge has profound implications for the health and well-being of the Midwest. Recent data from the Census Bureau indicate that income changes in the Midwest are particularly troubling. Average median household income in 2002 compared to that of 2001 decreased in more states in the Midwest than in any other region in the United States. Ohio, Missouri, Michigan, and Illinois decreased by 2.5, 4.8, 5.2 and 5.7 percent respectively.

According to studies conducted by the Kentucky Youth Advocates and the University of Kentucky College of Agriculture, the amount of monthly income that is needed to meet a minimum monthly budget for a family of three without falling back on public assistance is $1,685.92 or $20,231.04 per year. That translates into an hourly wage of $10.89 per hour to meet the minimum monthly budget and to pay Social Security and Medicare. This is called a self-sufficiency wage, the value of which changes little among all of the Midwestern states. The hourly income that many individuals without any postsecondary education can expect is minimum wage, $5.15 per hour. The minimum wage hourly amount is less than half of what is needed for self-sufficiency. Individuals living in these circumstances are facing a reality that is becoming ever more critical for our region. A high school diploma alone is no longer sufficient for getting jobs that pay wages resulting in economic self-sufficiency. The most obvious benefit

derived from a college education is that of higher earnings. Workers with a bachelor's, master's doctoral, or professional degree generally have higher incomes than do workers with less education. In 1996, college graduates earned nearly 75 percent more than high school graduates. Median annual earnings for all college graduates were $40,753, compared with $23,317 for all high school graduates (http://stats.bls.gov/gov/opub/ted/1998/oct/wk3/art05.htm). Over a lifetime, that difference amounts to nearly $700,000 (assuming 40 years of work) in 1996 dollars. The gap between the average baccalaureate graduate and a high school graduate is over $500,000 in 1996 dollars. These gains translate into improved quality of life for all citizens through the gains in tax revenues. Income taxes paid by more educated individuals benefit the state and, by extension, those citizens who rely on tax-supported programs. An individual with a baccalaureate degree will contribute almost $23,000 more to state coffers. The federal government will receive more than three times that amount.

Additional benefits accrue for states with increased post-secondary education experience among their populations. Benefits include reduced welfare dependency; lower incarceration rates; increased tendency to make healthy lifestyle choices; and increased likelihood of involvement in civic groups, volunteer organizations, and charitable causes. Full appreciation of these benefits, however, is mitigated by multiple difficulties. Midwestern states must deal with factors that detract from educational systems:

- Lack of emphasis in math and sciences for all middle and high school students continues to plague the aspiration of becoming well-equipped for the knowledge-based economy.
- Career counseling is often neglected or given less emphasis in middle school and high school, the important junctures in students' lives during which they are exploring career options.
- Inflexible class scheduling in postsecondary education does not accommodate the non-traditional student or meet the needs of private sector employers and is a fundamental barrier to successful pursuit of post-secondary educational pursuits for low-income and low skilled individuals.
- Problematic educational infrastructure – such as lack of broadband access in rural areas and inadequate training for teachers in the technologies necessary to prepare students for the 21st century – add to the deficiencies of educational systems.
- Finally, resources from Temporary Assistance for Needy Families (TANF), participation in post-secondary education, financial aid for non-traditional students, and support services such as childcare and transportation, are unevenly supported across states and often poorly understood and underutilized by eligible recipients.

Fortunately, these influences are counteracted by multiple strengths of Midwestern states. A growing awareness of and commitment to community and technical colleges represents a promising avenue for addressing the needs of low skill, low-income workers. Innovative partnerships between government, education, and private sector employers such as the Central Wisconsin Idea at the University of Wisconsin-Stevens Point and the Metropolitan College program in Louisville, Kentucky seem to produce exceptional benefits for employers and the community.

The Manufacturing Sector

Manufacturing is a fundamental strength of the Midwest, contributing to our knowledge-based economy through R&D expenditures - almost two-thirds of all private sector R&D nationally, $127 billion in 2002. However, the Midwestern states have lost a significant number of manufacturing jobs over the past several years.

Manufacturing profit margins are down due to a tighter U.S. economy and foreign competition that is fueled by lower labor costs. Foreign competition is also impacting the service industries as well. Any economic rebound in Midwestern states will not be robust unless manufacturing companies become more competitive.

Moreover, as a result of the recent recession and stronger foreign competition, Midwestern states have sustained significant manufacturing job losses - as much as 18 percent in some states. Some may argue that there has been a structural change in the economy that has resulted in the loss of manufacturing jobs. However, in the Midwest, many high-tech manufacturing jobs will be added as the Midwest moves toward full economic recovery. In today's globally competitive environment, we know that many of our low-skills commodity manufacturing jobs will continue to go to Mexico and China. However, the Midwest can be competitive in retaining and recruiting advanced manufacturers if it increases the skill level of its workers and assists companies to increase productivity and competitiveness through technology upgrades.

Currently, there are not sufficient numbers of skilled workers available to meet future manufacturer needs. Action must be taken now to attract and prepare new workers for this advanced manufacturing sector. While the Midwest has a competitive advantage in many of the factors important to manufacturing – a tremendous reservoir of skilled workers, close proximity to manufacturing support resources, and close proximity to markets – global competition on costs and quality requires an urgent response.

The good news is that state-of-the-art tools like Lean Manufacturing (efficiency) and Six Sigma (quality) are available now. However, to apply these new techniques and technologies, both line employees and manufacturing managers must be retrained. Kentucky's work in Lean Manufacturing and the Michigan Manufacturing Technology Center serve as examples of how to achieve this goal.

Midwestern states have the fundamental strengths to prepare for and take action. We have an attractive environment in which to raise families and historically strong K-12 and post-secondary education systems to prepare workers with essential academic training and high-tech skills. An emphasis on more rigorous academic standards and high-technology skill-based training will result in improvements for all economic sectors including the manufacturing sector.

Increasing the Midwestern states' workplace strengths in manufacturing will require upgrading of training programs for the entire manufacturing sector. Under-skilled workers must be trained to meet the demands of the "new" plant. Educational institutions, beginning at the elementary level, must train and prepare young people to enter the manufacturing sector with higher levels of skills. It is also important to make young people and their parents, as well as their educators, aware of the rewards of jobs in advanced manufacturing companies.

As part of the National Institute of Standards and Technology network, Manufacturing Extension Partnership (MEP) programs are uniquely positioned to meet the training and implementation needs of small and medium size manufacturers. The MEP program provides highly skilled engineers to consult with a manufacturing company's managers and workers in order to improve efficiency, quality and profitability.

MEP programs have a demonstrated capability to assist companies in the implementation of advanced manufacturing techniques and technologies. This initiative has a proven track record of helping manufacturing businesses become more profitable. Many MEPs also have developed training programs for companies up and down a manufacturer's supply chain. MEPs often consult in concert with universities and community colleges to offer training on a broader basis.

MEPs represent only one way the manufacturing workplace of tomorrow can benefit from education and training. A significant increase in incumbent worker training is required if the Midwest is to take advantage of its competitive edge in manufacturing. The following steps represent opportunities for pursuing this increase:

- To improve Midwestern manufacturing productivity and competitiveness, educational and skill-based training should be customized to ensure students have a working knowledge of nationally adopted competency standards [e.g., National Occupational Competency and Testing Institute (NOCTI), National Institute for Metalworking Skills

(NIMS), etc.]. The most significant benefit of this approach is that the individual receives training from an accredited training program that results in a credential that is recognized nationally. Not only can credentialed individuals compete more effectively in the marketplace, but businesses can hire with confidence that the individual is highly skilled.

- Immediate retraining of the existing manufacturing workforce in advanced manufacturing techniques is vital if the Midwest is to continue to prosper.
- New workers must also be attracted and prepared as older workers retire. These workers must have high academic, foundational skills that will allow them to learn and apply the new occupational skills that workers will need to be agile and earn high wages.

Action Item: Advocate for Enhancements in Federal Welfare Laws.

Midwestern states should use as fully as possible the provisions in the federal welfare law (TANF) that allow for support of education and training for welfare recipients with emphasis on support for recipients who participate in programs that grant college degrees. Similarly, the creation of accessible financial aid in the form of grants and loans for low skill, low-income workers who often must pursue education in a non-traditional, part-time manner would mean important gains. Current financial aid infrastructure and policies tend to be punitive for part-time, non-traditional students.

Action Item: Initiate Workforce Needs Research.

The region should undertake the research necessary to identify existing and projected workforce needs. The states must then work to align educational offerings with these needs and deliver career exploration, guidance, and placement in a system that coordinates the demand of business, the supply of workers, and the capacity building of education.

Action Item: Optimize Resources and Effectiveness Through Partnerships.

A fundamental insight we have gained in recent years is the power and efficacy of well-constructed partnerships to optimize resources; draw from the best of our support services; and build individual, business, and community capacity. Midwestern leaders should make the creation and implementation of coalitions a priority by studying and emulating the characteristics of successful partnerships among education and training institutions and private sector employers. Key to the realization of such a goal is the recognition that community and technical colleges have the flexibility to adopt and to adapt training to meet the specific needs of private sector

employers. Therefore the Midwest should convene education, business, and workforce development leaders to use data and findings from experience and reputable research to develop partnership models between education and employers that address the needs of the Midwest.

Action Item: Respond to Manufacturing Sector Needs by Promoting Manufacturing Extension Partnerships (MEPs). Monitor Federal Funding Levels to Ensure Continuation of These Successful Partnerships.

These programs have a demonstrated capability to assist companies in the implementation of any number of advanced manufacturing techniques and technologies as well as a proven track record of success in helping manufacturing businesses become more profitable. Many MEPs have developed training programs for companies up and down the supply chain. Many of the training programs are company specific and have been developed to act as a foundation for implementation of advanced manufacturing principles. In other cases, MEPs have acted in concert with universities and community colleges to offer training on a broader basis. The critical aspect of success for this type of effort is the collaboration among post-secondary institutions – technical colleges, community colleges, regional colleges, and universities.

Worth a Closer Look: *One such example of a training program is the Boeing/Missouri Enterprise supplier development program. By way of background, the majority of an OEM's cost (some report as much as 80 percent) is embedded in the supply chain, but suppliers too are coming under increasing pressure. OEMs are contracting their supply bases. Some plan to reduce them as much as 50 percent in the next decade. OEMs are looking globally for suppliers and making strides in applying advanced techniques and technologies up and down their supply chains. In short, suppliers will constantly have to measure up to higher costs, quality, and delivery standards or be left behind.*

The Boeing/Missouri Enterprise Supplier Training Program is an excellent response to the demands upon companies in the supply chain of a major global OEM. This program seeks to reach more than 150 Boeing production suppliers in the state of Missouri with a carefully conceived training curriculum that will upgrade the skills of the manufacturing manager and plant floor worker to reach the level needed to effectively compete. Lean Manufacturing, AS9100 Quality Management Systems, Continuous Process Improvement, and Six Sigma training are among the areas in the curriculum. In addition, the program offers training in critical management skills, including basic leadership, conflict resolution, creative problem solving, project management, time management, and facilitation skills.

Recommendation 3: Bundle and Deliver Internet-Available Local, State, and Federal Career-Related Information and Decision-Making Tools in a User-Friendly Manner.

Continual Learning and Career Self-Management

In order to be competitive in attracting and retaining knowledge-based economy businesses and jobs, the Midwestern states must create an environment that encourages and supports the success of citizens to learn continuously and make better-informed learning, job, and career choices.

The rate at which technology in the workplace is changing and the corresponding need for workers to routinely upgrade their skills - to ensure the region's economic competitiveness - make continual learning increasingly more important. This need to learn continually is equally important to the workers who must upgrade their skills to remain competitively employable, and to the employers, who are constantly searching for skilled workers and increased productivity to sustain their businesses in an increasingly complex and competitive economy.

To support an environment of continual learning, there must be greater awareness among citizens that, to earn more, they need to learn more. The Midwestern states have a common challenge to raise public awareness of this fact of life in a knowledge-based economy. A second reality is that the job and career success of citizens will be determined in large measure by their ability to be well informed about their own aptitudes and interest and the learning, job, and career options available to them. Low aspirations and low skill job and career choices will not support individual, business, community, or state success in our knowledge-based economy.

Action Item: Ensure Citizen-Friendly Access to a Bundle of Internet Based Career Management Tools.

As workers make job and career changes, too few are pursuing work and learning options that align with the high skill and high-wage jobs states seek to attract. In a tight budget environment, states are challenged to better inform, motivate, and equip citizens to make work and learning choices that will increase their employability and prosperity in a knowledge-based economy. Fortunately, career and labor market-related tools and information are increasingly available on state and federal websites. However, many citizens are unaware of these resources or find themselves overwhelmed by the sheer number and, often times, complexity of the sites. The continuous challenge of bundling easy-to-understand or "user-friendly" career and labor market information for citizen use is one that the Midwestern states could approach together in a joint initiative. Therefore, Midwestern leaders should charge a team of experts, including persons

with lead responsibility for state-supported Internet delivery of career-related information, to develop an action plan that would simplify Web-based career information. Additionally, a shared MGC mechanism for collaboration among the Midwestern states to support each state in implementing the recommendation should be created.

Worth a Closer Look: *A number of the Midwestern states (**Kentucky, Michigan, Ohio, Illinois** and **Minnesota**) are involved in a U.S. Department of Labor initiative to develop and promote the use of Internet-based tools to support worker career management success. The representatives, serving as members of the CareerOneStop Consortium, provide advice on the continuing development of CareerOneStop.org. This is a U.S. Department of Labor website – filled with information and tools that a state can bundle with its own career management tools and information under its own state brand name if they choose.*

Career Pathways

A key support system must be established to assist and address the immediate needs of those with low wages and low skills. The governors of the Midwest could provide invaluable leadership by convening a regional group of education and workforce development experts to study and implement a state-by-state and regional strategy to provide career pathway models. These pathway models and a focused Internet-based career management tool are two critical steps that can be taken to create an environment supportive of continual adult education.

Worth a Closer Look: *The Career Pathways model currently being studied and implemented by CAEL and the Ford Foundation represents a robust methodology to identify the educational and training needs of people who can benefit from such a program. This model seeks to identify the educational experiences that will lead to living wage careers, especially those related to the economic development goals and strengths of the region, and provide a map to reach that goal. **Ohio** and **Kentucky** have recently initiated a joint effort to implement such a program in conjunction with the community and technical colleges, and **Michigan** has supported the expansion of Career Pathways through its school districts and community colleges.*

Increasing Research Capacity and Accelerating Commercialization

The Role of Research in Commercialization

Basic research drives applied research, which in turn, drives commercialization. Research drives innovation through the creation of new knowledge and technologies that are then transformed, through commercialization, into new jobs. New technologies have been responsible for over half of U.S. economic growth since World War II. Although basic research is critical and continuously needs to be supported, it is applied research that optimally transforms discoveries into products.

Partnerships among academic institutions, industry, and state governments are absolutely essential if the Midwest is to become more competitive. In these partnerships, universities are best positioned to carry out basic and applied research. The private sector has the tools necessary to bring technologies to the marketplace. The public sector can provide policy and infrastructure support to bring the university and private sectors together. Governors play an important role in this process through their ability to set public policy, serving as valuable catalysts for enhancing the commercialization of innovative technologies. An understanding of the delineation of the roles of universities and the private sector is *critical* for any governmental or policy board that aspires to impact this relationship

Consistent with the land grant mission, there is a lengthy history of university interaction with agricultural and engineering interests in the region, but outside of this established connection, collaborations between companies and academic institutions in the Midwest are comparatively new. This is particularly true for the smaller to medium-sized companies, which traditionally have not gone outside their organizations for assistance. These companies have not been aware of the resources available at academic institutions that could be utilized for their competitive advantage. The academic institutions, on the other hand, have had to grapple internally with allocating resources among their missions of teaching, research, and outreach, of which economic development is only one component. The perceived difficulty between industry and academic institutions in the Midwest, like that in other regions, is due to differences in culture that can be overcome by working together.

Midwestern academic institutions must be involved in core economic development activities because they comprise one of the most effective foundations for such development, as shown in other regions of the United States. Although this development can only occur if it is consistent with the mission of each institution, as states with limited budgets seek to leverage scarce resources, the academic institutions are the richest starting point for a wide variety of

research and development activity. Increasingly, institutions in the Midwest are emphasizing technology transfer and economic development as major components of their research or outreach missions. Recombinant DNA technology is one of the best examples of a technology generated from university research that has created an entirely new multi-billion dollar biotechnology industry through public-private partnerships.

Midwestern governors need to tout the natural advantages that academic institutions bring to help address their states' challenges in business expansion. Specifically, governors should avidly seek to align the R&D functions and educational programs of the universities with the basic economic needs of the state and region.

Recommendation 4: Increase investment in research and commercialization infrastructure.

Universities in the Midwestern states are facing major challenges in building and maintaining the infrastructure that is critical to their competitiveness for federal funding of basic research. Basic research lays the foundation for applied research, product development and eventually, successful commercialization of technologies. The lack of funds for basic research imposes a very large hurdle in the Midwest's ability to promote economic development. Basic research fuels applied research that can lead to spin-off companies, from which existing Midwestern businesses can tap into for their competitive advantage. As a result, Midwestern states are not able to attract and retain the kind of sophisticated capital and businesses that have made the states on the east and west coasts more successful in developing a high-tech economy.

Physical infrastructure for research is also needed to help transform ideas to products. Increased investments in research infrastructure, including facilities and large instrumentation for fundamental and applied research, are critical if the Midwest is going to be competitive.

Midwestern universities also need to focus on leveraging resources across state boundaries, which can take several forms. Because of the collaborative nature of academia, it is the logical place for states to begin making the inroads that transcend physical boundaries. Universities can collaborate in three major ways: on research projects, on services provided to each other (in-kind) or outside customers, or by bundling their related technologies for licensing and company formation.

Worth a Closer Look: *OVALS Group*

The OVALS group, or Ohio Valley Affiliates for Life Sciences, is a partnership created to facilitate university collaborations among several Ohio Valley schools and organizations in the areas of life sciences and biotechnology. The University of Louisville, University of Kentucky, University of Cincinnati, and Wright State University are the member schools of OVALS. Recently added to OVALS' list of collaborators is the Wright Patterson Air Force Research Labs. The benefits of the OVALS model include an increased funding base, access to a wide range of medical and biotechnology facilities, and the support of multiple state and local governments. OVALS also engages the local business community as economic development partners. These partners, who include Cincy TechUSA, Kentucky's Office for the New Economy, and BIO/START, help OVALS by increasing available capital and offering entrepreneurial knowledge, support systems (as well as making available more world-class research by facilitating the sharing of information among OVALS members). OVALS also offers events and presentations intended to help with science and business networking opportunities. For more information, visit www.ovalsgroup.org.

Action Item: Strategically Leverage State Funds to Gain Maximum Return From Federal Government.

While states are currently working to maximize the amount of federal funding they receive, the working group believes there are ways in which states could work together as a region to gain even more federal funds. Partnering with institutions within a state or within the Midwest may yield additional funding.

Action Item: Develop Regional Cooperative Agreements Between States and Their Universities to Increase Research and Product Commercialization Efforts.

The continued support for maintaining a high-quality state university is quite clear. However, as support for state higher education systems remains a significant portion of each state's budget, universities and businesses must look for areas to increase the rate of return of this taxpayer investment. Increasingly, Midwestern universities are competing with each other for research grants, students, professors, and administrators. While some competition is healthy and increases academic performance, there are ways in which states can begin to cooperate with each other and yield mutually beneficial results. Whether it be strategically positioning each university to avoid duplicate specialization centers or working in cooperation to secure

government and other research grants that benefit universities throughout the region, businesses, universities, and state governments must look for regional solutions to these challenges. Regional cooperative agreements should be signed by states and their universities whenever possible. These agreements would outline areas of cooperation and determine procedures that would streamline and encourage research and commercialization.

Recommendation 5: Promote technology transfer and commercialization through better university-industry collaboration.

States and universities must have focused professional technology transfer offices that can effectively license out and work with the corporate world in commercializing research and development. Universities need to bring value to existing businesses and partner with the public/private sector to promote the formation of new businesses. In doing so, it is important to understand the expectations of both industry and academic institutions.

Existing industries expect to gain access to academic institutions for technologies/intellectual property, research capabilities, expertise, students, and specialized equipment and facilities. However, industry often expects to keep industry-funded research proprietary and wants notification of appropriate technologies for their specific business. Industry tends to be more flexible than academic institutions, and industry can be frustrated by the efforts necessary to access academic institutions and the time it takes to license technologies from academic institutions.

Academic institutions have complex missions that include teaching, research, and outreach. All of these activities have a high priority relative to technology transfer. In addition, academic institutions are bound by the Bayh-Dole Act and other federal and state laws that govern non-profit organizations. Academic institutions have to be able to conduct research for everyone (including competitors), need to be compensated for costs associated with research conducted for industry (including indirect costs), and need to be compensated appropriately for intellectual property transferred to industry.

How can we overcome these two different sets of expectations and the perceptions that grow from them within industry and academic institutions? One approach is to let "market forces" decide how best to overcome and harmonize differing expectations. The other is to proactively promote collaborations between universities and industry. Universities could enable easier industry access by creating a single point of entry for industries interested in research performed by universities. More collaboration between academic institutions and industry will

help resolve cultural differences and develop potential joint opportunities to spur new commercial and entrepreneurial development beneficial to both parties.

In addition to science and engineering research activities, industry should tap into the expertise of the university faculties of business and law. Many universities are becoming more flexible in their approaches by forming separate entities and taking equity positions in lieu of upfront license fees. Universities need to share their intellectual property donation strategies with each other. Industry should consider offering intellectual property that they do not intend to commercialize to either employees or universities for commercialization of new products. Procter & Gamble and Boeing are two companies that have patent donation programs in which they give intellectual property and patents to employees or other research centers.

Worth a Closer Look: *Procter and Gamble's(P&G) patent donation program counts among its recipients Vanderbilt University, Clemson University and TRI/Princeton, with the list of schools continuing to grow. Through the program, P&G hopes to educate a new generation of scientists by giving students the opportunity to work with new, patented technology and gain real world experience. P&G also assists with development work at universities and research institutions to help develop other new technologies. Recipients of these patents are entitled to all claims on future revenue created as a result of their work.*

Patent donation recipients are chosen by an 'independent industry expert' that advises P&G on the most qualified candidate for patent receipt. Previous donations include North Carolina State University's 37 P&G patents, including a textile production process, and the Milwaukee School of Engineering's 40 donated patents, including product-molding technology. The Mayo Clinic and Cincinnati Children's Hospital have also received patent donations. For more information, visit Procter and Gamble at www.pg.com.

<u>Action Item</u>: Review State Regulations Governing Intellectual Property to Support and Encourage Increased Intellectual Property Sharing and Collaboration.

Intellectual property issues have changed tremendously over the last decade. However, state legislatures have been slow to recognize the impact that outdated and underdeveloped regulations have on the growth of new business. Governors should encourage legislative, business, and economic development leaders to convene a regional cheret to discuss ways in which government regulations and laws could be changed or enhanced to the advantages of both businesses and governments. If possible, new regulations and laws should be developed with a regional focus and be standard across the region.

Action Item: Create Mechanisms to Significantly Improve University-Industry Interaction.

Whether through one-stop shops for business-university interactions or through the creation of statewide technology transfer leader, steps should be taken to increase the ease in which universities and business interact with each other. Each major research university should create a one-stop office that would develop relationships with Midwestern businesses and facilitate the commercialization of university research. Alternatively, governors could create a technology transfer leader position that would be responsible for bringing businesses and entrepreneurs together with university researchers.

Recommendation 6: Market the Midwest.

Marketing the Midwestern Region

The need to market the Midwest is clear. There is tremendous momentum surrounding the effort to cast the Midwestern region as a knowledge-based economy leader. Many states within the Midwest are offering progressive services that are meeting the needs of knowledge-based economy companies, and influxes of "digital immigrants" have relocated themselves and their businesses here. In addition, a significant number of new businesses have started in the Midwest. The numbers of both new knowledge-based economy jobs and newly trained and educated knowledge-based economy workers in the Midwest have increased. While this report does not contain an exhaustive analysis and inventory of all the Midwestern regional assets, intuitively this is an exciting time for the Midwest. The future for the Midwest's economic health is bright.

Unfortunately, the awareness level of the strengths offered by the Midwest is low. Of even more concern, the common perception today among knowledge-based economy business leaders and workers (in all companies) is that Midwestern governments are a roadblock to progress and that it is easier to "go-around" the government to get results. This perception could be due, in part, to untold success stories, lack of marketing on behalf of the Midwest, and limited dialogue between Midwestern government officials and knowledge-based economy leaders. One can assert that other regions with fewer strengths conducive to knowledge-based economic development are gaining ground over the Midwest in creating jobs, attracting investment capital, building infrastructure, and ultimately, offering a better quality of life for their citizens.

The regions commonly recognized as leaders in the knowledge-based economy (e.g. Atlanta, Austin, Research Triangle, and Virginia's "Digital Dominion") have one considerable

component in common - a marketing culture focused on telling stories of progress and successes. This culture may be difficult for the Midwest to adopt because state governments are not structured to "do" marketing. However, many other regions have overcome this obstacle by creative teaming with a variety of organizations - public and private - to advance their image. Competition in the knowledge-based economy requires a great deal of promotion and celebration of successes, while concurrently shedding the inferiority complex of "being behind."

Action Item: Market the Midwest.

Partner with regional and state chambers of commerce, economic growth organizations, technology councils, and academic institutions - each of which has significant marketing expertise and budget - to define and launch creative campaigns to promote the Midwest's identity as a knowledge-based economy leader. The campaign should use an element of surprise and serve to "grab" the audience. It is recommended that the Midwest celebrate the number of so-called "digital immigrants" who have made the Midwest their new home and have successfully launched or joined a visible knowledge-based economy business. There are many such "digital immigrants" in the Midwest. This fact creates surprise on both a local and national level at a time when many established centers of knowledge-based economy activity are losing talented workers who have become frustrated with the high cost of living and doing business. The use of knowledge-based economy customer testimonials can be more effective in telling the story of the value of the Midwest than traditional program descriptions in government brochures.

Action Item: Host a Distinguishing Annual Event.

Host a "distinguishing annual event" in which the Midwest calls together our regional partners to set the pace for the entire nation in knowledge-based economy leadership. A set of events over a weeklong period would create significant news and make a bold statement about the Midwest's role in the knowledge-based economy. Recommendations for specific events and activities include:

- A major national/international conference drawing Midwestern industry leaders, educators, entrepreneurs, and policy makers to showcase and discuss a topic central to the future of our country and technology trends.
- A Governors' regional knowledge-based economy summit & exposition attended by public sector leaders from our region as well as national experts. This event will address all aspects of Midwestern regional development in the knowledge-

based economy, including transportation, parks and open spaces, workforce, and creating super-regional strategies for survival. The Midwest could be the first in the nation to develop a reputable and collaborative regional program. If the summit & exposition is planned effectively, it could draw a great number of government officials, business leaders, and not-for-profits from throughout the Midwest. These critical entities would look to the Midwest as a visionary partner in the knowledge-based economy. The summit & exposition would distinguish the Midwest as a pioneer in regional government "coopetition." It is anticipated that this event will become an annual event, hosted by various other entities throughout the Midwest.

- An optional activity to be held in conjunction with those described above is a Midwestern job fair. The convergence of industry leaders, public sector leaders and the overall attention in the Midwest, as a result of the major conference and Governors super-regional knowledge-based economy summit creates a timely opportunity to showcase the available talent to fuel knowledge-based economy growth.

Targeting Knowledge-Intensive Industries

The efforts of other regions, states and countries to stimulate the growth of knowledge-based industries within their jurisdictions were analyzed to determine any similar characteristics needed for this successful initiative. An examination of these documents reveals many common features in their attempts to create/expand/attract knowledge-based industry. Most include the following necessary pre-conditions to stimulate growth:

- A partnership among industry, education, and government;
- A long-term commitment to growth;
- A "business-friendly" environment; and
- An attractive quality-of-life.

The large number of other states attempting to grow knowledge-based industries also suggests that, unless the Midwest is successful in its efforts, further ground will be lost. It must be noted here that it is imperative that the Midwest retain its current industry base, as well as expand it. The Midwest as a whole does not benefit when a company moves from one state to another state within the Midwest. However, all states within the region lose when companies move to the east or west coast or to another country.

Below are the recommendations that the taskforce believes will lead to growth of such industries. The recommendations below are divided into two groups: preconditions for growth and further efforts that should be undertaken.

Preconditions for Growth

Enable the establishment of Business/Education/Government Partnerships as an implementation tool for accomplishing common economic development goals.

To establish a successful partnership, the senior leadership in business, education, and government must be committed and engaged.

While there are some three-way partnerships in the Midwestern region that have successfully helped states, regions, and communities improve their competitiveness, more need to be developed. Some of the most successful partnerships are industry-led, government facilitated partnerships with education. The partnership promotes a team mentality that helps generate the necessary excitement, camaraderie, and synergistic discovery of new solutions for tough economic development challenges.

Each of the three elements of business, education and government brings a unique perspective and contribution to the partnership. Together, they identify and understand common goals, define an action plan, and implement that action plan. Each is necessary for success.

The three-way partnership acts as a neutral coordinator for fostering cooperation between the three major entities in working toward common goals for the community. Solutions sought by the partnership can be those that help ensure that each of the partners is a "winner." Specifically, the partnership allows each to:

- Remain focused on its mission.
- Document relevant issues and develop relevant solutions.
- Act as a relevant and current advocate for solution of the issues.
- Serve as a catalyst in bringing recognition to the action plan.

Three-way partnerships are a best practice for helping a community, state, and region focus on a solution of common economic development goals. It is a "triple-win" approach whereby private business wins by having a ready supply of educated employees, education wins by having full classrooms, and government wins by having productive and vibrant communities.

Building on local/state/regional competitive advantages

To understand the competitive advantages of a locality, state, or region, it is essential to formally assess its ability to support its current knowledge-based industry, as well as its environment for attracting new industry. Some of the major conditions an industry will assess prior to making a decision to locate/expand include infrastructure, quality of life, workforce, industry support, and community support.

Each region should develop a self-assessment instrument or "scorecard" to assist in determining its readiness to support a particular industry. A sample survey for information technology businesses is contained in the appendix and is available at http://www.cspp.org/projects/readiness/pdf/RG.pdf.

Recommendation 7: Create a Midwestern Growth Policies Board

The MGC should establish a Midwestern Growth Policies Board, modeled after the highly successful Southern Growth Policies Board. This organization is a non-partisan public policy think tank based in Research Triangle Park, North Carolina. Formed it in 1971 by southern governors, the Southern Growth Policies Board develops and advances visionary economic development policies by providing a forum for partnership and dialogue among a diverse cross-section of the region's governors, legislators, business and academic leaders, and the economic- and community-development sectors. This unique public-private partnership is devoted to strengthening the South's economy and creating the highest possible quality of life for its residents. The Southern Growth Policies Board is supported by memberships from 13 Southern states--Alabama, Arkansas, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Virginia, West Virginia, and the Commonwealth of Puerto Rico. An essential focus of the Southern Growth Policies Board is research into the major drivers for economic development in the South — innovation and technology, globalization, the changing nature of the workforce, and the vital role of the community. The Southern Growth Policies Board provides its members and the region with independent and authoritative research, discussion forum and pilot projects that define the critical issues shaping the South.

It also develops new regional strategies for economic development and identifies best practices to facilitate action. The SGPB's policy work and research are directed by four advisory councils, each chaired by a Southern governor. The four councils are aligned with its major research areas and include The Southern Technology Council, focusing on innovation and

technology; the Southern Global Strategies Council, focusing on globalization, international trade and investment, immigration, and international education; the Council for a New Economy Workforce, focusing on workforce issues; and the Council on the Southern Community, focusing on leadership, civic engagement, and community development and growth. The Southern Growth Policies Board produces reports, toolkits, and policy papers to support the deliberation and projects of the four advisory councils.

Each June, SGPB releases an annual Report on the Future of the South. The report is the centerpiece of the organization's yearly conference and the catalyst for in-depth discussions on issues facing the region. We believe that Southern Growth Policies Board has repaid the investment by the partnering states many times over since its inception. We firmly believe that a similar organization, serving the thirteen Midwestern states, would prove equally as valuable over the coming decades.

Action Item: Task MGC Staff and Working Group Leaders to Research and Analyze the Southern Growth Policies Board and Assess its Implementation Potential in the Midwest.

This recommendation, though listed as a recommendation from the Targeting Knowledge Intensive Industries workgroup, was wholeheartedly endorsed by the other two working groups as well. A Midwestern Growth Policies Board, housed within the MGC, would be a natural extension of the activities of the three working groups over the past year. The creation of this board would maintain the momentum established by the "Investments for the Knowledge-Based Economy" initiative.

The Board's ultimate agenda could include action items such as:

- Explore Alternative Educational Delivery Systems. (Action Item from Recommendation 1)
- Establish a Midwest Literacy/Numeracy Taskforce. (Action Item from Recommendation 1)
- Initiate Workforce Needs Research. (Action Item from Recommendation 2)
- Focus on the conduct of research into the major drivers of economic development.
- Develop, analyze and advise Midwestern Governors concerning economic development issues in the region.

In order to begin this process, staff from the MGC and state economic development secretaries should be appointed to a study group that would research and analyze the Southern Growth Policies Board and assess its implementation potential in the Midwest. The study group should then report back its findings to the Governors at their next meeting in July 2004.

Recommendation 8: Assess the Midwest's competitive advantages in light of the global economy.

The Region's Competitive Advantage

Maintaining a clear understanding of the Midwestern region's competitive advantages will be critical for successful economic development in the context of the 21st century global economy. The interconnectedness of the region's knowledge-based companies and workers fuels the global economy. Understanding the impact of the choice of geographic location for knowledge-based workers becomes much more complex as a result of anytime, anywhere, anyplace communication services available through the Internet and related telecommunication services including both wire line and wireless technologies.

One thing is certain. Regional competitive advantage will be predicated on the availability and affordability of network infrastructure, network access, and network use. Information technology is an enabler to every sector of the economy today, but especially critical to knowledge intensive industries that are sought for the Midwest. Understanding how Midwestern business, government, and educational institutions are utilizing the Internet and advanced telecommunication services, in comparison to other regions, is essential in crafting strategies to move the region forward. Technology usage, access, and infrastructure are interrelated, and a clear understanding is crucial to mapping the most appropriate regional strategy:

Usage - The ways in which businesses, schools, governments, and individuals make us of the Internet and related technologies.

Access - The availability, speed, and cost of Internet access throughout the region.

Infrastructure - The extent to which the Midwest is connected to the global network and the potential data-carrying capacity of those connections.

As discussed earlier in this section, there are certain pre-conditions that must exist in order to attract knowledge-based companies. Each individual state will score high in some areas and lower in others. As a region, the Midwest will score very high in all of the pre-conditions. The Midwest also has a lower cost of living than exists on the two coasts. When combined with natural beauty and an excellent education system, the Midwest can attract a wide variety of

businesses. It clearly has an advantage over most other areas in those businesses that support and take advantage of agriculture and bio-derived products.

Action Item: Assess the Midwest's Competitive Advantages Beginning with its Communications Infrastructure by Reviewing and Analyzing Publications Such as TechNet and Computer Policy Project to Develop Specific Steps States can take to Improve their Readiness for Knowledge-Based Industries.

Two of the leaders in assessing information technology and its growth are TechNet and The Computer Systems Policy Project (CSPP). "TechNet is a bipartisan network of CEOs that promotes the growth of Technology Industries and the Economy by building long-term relationships between Technology Leaders and Policymakers and advocating a targeted policy agenda."[1] In this report, TechNet surveyed state policy initiatives that had a significant impact on broadband deployment and demand. TechNet then ranked the top twenty-five states based on the extent to which their public policies spur or impede broadband deployment and demand. In the overall rankings and order, the top five states were Michigan, Florida, Missouri, Texas and Ohio. You may access *The State Broadband Index* at http://www.technet.org/resources/State_Broadband_Index.pdf

The Computer Systems Policy Project (CSPP) consists exclusively of CEO's from the industry leaders in information technology. Michael Dell, of Dell Computer, is chairman of the group that has worked to "develop and advocate the IT industry's public policy positions on technology and trade issues[2]." *The CSPP Readiness Guide for Living in the Networked World: A Self-Assessment Tool for Communities* "provides a snapshot of where communities fall along a continuum of readiness. From the stage-one community with a minimum of the necessary technology and applications, to a stage-four community that has a very advanced technology and ubiquitous applications, the Guide provides a framework that can help guide discussions, drive decisions and produce results."[3] The complete guide may be viewed at http://www.cspp.org/projects/readiness/pdf/RG.pdf. This task could be part of the Midwestern Growth Policies Board mission that was detailed in Recommendation 7.

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[1] Statement extracted from the TechNet Website at http://www.technet.org/who/index.html
[2]Statement extracted from the CSPP Website at http://www.cspp.org/aboutus.asp
[3] The CSPP Readiness Guide For Living in the Networked World A Self-assessment Tool for Communities, Page 2

Recommendation 9: Create an environment that supports innovation through implementation.

Innovation through Implementation

Most people who have studied the problems associated with innovation in business and industry agree that at least the following conditions must be present for innovation to flourish: financing, infrastructure, workforce, and technical assistance. Working together, a partnership among business, government, and education can be leveraged not only to create an environment that supports innovation, but also facilitates the adoption of innovative technologies, processes, and strategies.

While larger businesses usually have the necessary resources to finance product and process innovations, small and start-up businesses often do not. The education, government, and business partnership could draw on the expertise of each component to strengthen the ability to receive funding through grants, such as the Small Business Innovation Research (SBIR) program and state or regional grants that supplement the SBIR grants. The educational component could supply technical expertise in many areas, including technical writing assistance of the grants submitted. Further, some states invest a small portion of pension funds in businesses that promise returns on those investments and the creation of high-paying jobs for the citizens of the state.

An appropriate infrastructure for innovation is essential. For example, for businesses of all sizes to take advantage of e-business potentials, high-speed communication lines must be present. Most large cities have adequate communication facilities now, but some rural areas still lag behind. Traditional infrastructure of road, rail, air and, where possible, water transportation systems appropriate to the type of industry desired are essential as well.

The framework for innovation has to be in education at both K-12 and university levels. A deep commitment to strengthen the math, science, and technology curriculum at the K-12 level can serve as the catalyst for innovation. At the university level, both traditional degree programs and specialized certificate and short courses can assist the region's workforce to acquire the new skills necessary for innovation. However, the framework and infrastructure for innovation is at risk as we move toward the privatization of higher education. Each year we are seeing the erosion of state dollars for our public institutions. This can be an area where the Midwestern Governors can take the lead in re-establishing public financial commitment to our state universities and colleges.

Worth a Closer Look: *There are several initiatives underway in Ohio to support the growth of knowledge-intensive industries. These include the* ***Wright Centers of Innovations (WCI),*** *which will be multi-organizational collaborations formed to accelerate commercialization of world-class research in Ohio. A WCI will have sufficient scale and quality to move Ohio toward a position of international leadership in Ohio's core competencies of advanced materials; bioscience; power and propulsion; information technology; and instruments, controls and electronics. Total three-year operating budgets for Wright Centers are to be in the $30-60 million range. Awards to create the first WCI's in the areas of fuel cells, medical imaging, and stem cell and regenerative medicine were made in June 2003. In addition, the* ***Ohio Research Commercialization Grant Program*** *was created. It provides grants to small technology-oriented companies to assist in furthering commercialization of projects associated with success in competing for SBIR, STTR, and ATP funding. The* ***Ohio Venture Capital Fund*** *is designed to increase the amount of professionally-managed early and seed stage capital available to Ohio-based companies. It will raise up to $100 million from banks in the form of loans that will be secured through the issuance of tax credits. The* ***Innovation Ohio Fund*** *is a $100 million loan fund to help existing Ohio companies and companies new to Ohio invest in fixed assets to take the products of research and development and create new commercial products. This fund is designed to fill an existing market gap in mezzanine financing in amounts from $250,000 to $5 million available principally to small and medium-sized companies.*

<u>Action Item</u>: Assess Midwest Programs to Provide Support for Financing Innovations, the Region's Infrastructure, its Workforce, and Level of Technical Assistance.

Current best practices of innovation initiatives need to be identified and then shared with other businesses and government leaders in the region. This process needs to take place continuously. This action step could be incorporated into the recommendation to market the Midwest.

Worth a Closer Look: *The Department of Economic Development of the State of Missouri, in partnership with the state's research university and industry, created the Research Alliance of Missouri (RAM). The RAM will provide expertise and guidance in linking education and business. The RAM is made up of leaders in higher education and in the private sector who work together to coordinate life sciences research and provide more access to technology for Missouri businesses. It allows the universities to pool their resources, exchange life science research ideas, and turn this research into commercial opportunities. The alliance will also allow businesses to communicate what their workforce needs are, and how university research may best serve them.*

Action Item: Provide Leadership by Holding Focused Regional "Readiness" Conferences, Integrated Marketing Campaigns, Strategic Summits, and Regional Think Tanks.

The adoption and implementation of innovative technologies, processes, and strategies is possibly the biggest challenge facing U.S. and Midwestern business leaders. This is an area of opportunity for the Midwestern Governors to get very tactical in providing leadership for their many constituents in both the public and private sectors. That leadership can take many forms, including focused regional "readiness" conferences, integrated marketing campaigns, strategic summits, regional think tanks, and the bully pulpit.

Worth a Closer Look: *The Applied Information Management (AIM) Institute is a not-for-profit membership organization created by a consortium of Nebraskan business, education, and government entities to support and promote business growth related to information technology. The mission of the AIM Institute is to provide information technology leadership to the greater Nebraska community by focusing, coordinating, and synergizing the resources of the educational, governmental, and private business partners.*

Appendix I

Enhancing Education and Workforce Skills

Dr. Dan Ash, Kentucky, *Chair*

INDIANA
Alan Degner
Commissioner
Indiana Department of Workforce Development
10 North Senate Avenue
Indianapolis, IN 46204

KENTUCKY
Dr. Dan Ash
Executive Director
Metropolitan College
200 West Broadway, Suite 800
Louisville, KY 40202

Dr. James Votruba
President
Northern Kentucky University
800 Lucas Administration Building
Highland Heights, KY 41099

John Palmer
Deputy Director, Workforce Program
Michigan Department of Career Development
Victor Office Center, 7th Floor
201 North Washington Square
Lansing, MI 48913

David Mitchem
Director, Division of Workforce Development
Missouri Training and Employment Council
421 East Dunklin
Jefferson City, MO 65101

Sandra Moore
President

KANSAS
Peter Gustaf
Executive Director
Kansas Technical Training Initiative
220 West Douglas, Suite 412
Wichita, KS 67202

Dr. Michael B. McCall
President
Kentucky Community & Technical Colleges System
2624 Research Park Drive
P.O. Box 14092
Lexington, KY 40512-4092

MICHIGAN
Emily Fleury
Research Analyst
Office of the Governor
State Capitol
Lansing, MI 48909

MISSOURI
Clyde McQueen
Director
Full Employment Council
1740 Paseo
Kansas City, MO 64108

Orlo Schroyer
Deputy Commissioner
Department of Elementary & Secondary Education
Jefferson Building
Jefferson City, MO 65101

NEBRASKA
Doug D. Christensen

Urban Strategies
1101 Lucas Avenue
St. Louis, MO 63101

Commissioner of Education
Department of Education
301 Centennial Mall South, 6th Floor
P.O. Box 94987
Lincoln, NE 68509-4937

Ferando Lecuona
Commissioner of Labor
Department of Labor
550 South 16th Street
P.O. Box 94600
Lincoln, NE 68509-4600

OHIO
Jon Dudley
Office of the Governor
77 South High Street
Columbus, OH 43215

Dr. E. Garrison Walters
Vice Chancellor, Academic Affairs & Economic
Advancement
Ohio Board of Regents
30 East Broad Street, 36th Floor
Columbus, OH 43215

NORTH DAKOTA
Jim Hirsch
Division Director
Workforce Development Division
P.O. Box 2057
Bismarck, ND 58502-2057

Darryl Hennessy
Executive Director, Governor's Workforce Policy
Board
Ohio Department of Development
77 South High Street
Columbus, OH 43215

Targeting Knowledge-Intensive Industries

Dr. Gary Thomas, Missouri, *Chair*

INDIANA
David Goodrich
President and CEO
Central Indiana Corporate Partnership, Inc.
One American Square, Box 82026
Indianapolis, IN 46204

KENTUCKY
Dr. Linda Johnson
President
Center for Information Technology Enterprise, Inc.
1711 Destiny Place, #108
Bowling Green, KY 42104

Dr. Tom Lester
Dean
College of Engineering, University of Kentucky
353 RGAN
Lexington, KY 40506-0503

MISSOURI
Dr. Gary Thomas
Chancellor
University of Missouri-Rolla
206 Parker Hall
1870 Miner Circle
Rolla, MO 65409-0910

Gerald Daniels
Vice Chair and CEO
Engineered Support Systems, Inc.
201 Evans Lane
St. Louis, MO 63121

KANSAS
Dr. William Duncan
President
Kansas City Area Life Sciences Institute
4520 Main Street, Suite 935
Kansas City, MO 64111

Dr. Kris Kimel
President
Kentucky Science & Technology Corporation
P.O. Box 1049
Lexington, KY 405-88-1049

MICHIGAN
Emily Fleury
Research Analyst
Office of the Governor
State Capitol
Lansing, MI 48909

Robert Marcusse
President
Kansas City Area Development Council
2600 Commerce Tower
911 Main Street
Kansas City, MO 64105-2049

NEBRASKA
James Schmidt
Senior Vice President
First National Bank of Omaha
1620 Dodge Street, 17th Floor
Omaha NE 68102

NORTH DAKOTA

Don Morton
Senior Staff, Business Development
Office of the President
Microsoft Business Solutions
One Lone Tree Road
Fargo, ND 58104

Dr. Norman Chagnon
Assistant Deputy Director, Technology Division
Ohio Department of Development
77 South High Street, 25th Floor
Columbus, OH 43215

OHIO

Dorothy Baunach
Director
NorTech
737 Bolivar Road, Suite 3000
Cleveland, OH 44115

Jon Dudley
Office of the Governor
77 South High Street
Columbus, OH 43215

Increasing Research Capacity And Accelerating Commercialization

Johnathan Holifield, Ohio, *Co-Chair*
Prem Paul, Nebraska, *Co-Chair*

INDIANA
David L. Johnson
Attorney-at-Law
Baker & Daniels
300 North Meridian
Indianapolis, IN 46204

KANSAS
Tracy Taylor
President and CEO
Kansas Technology Enterprise Corporation
214 SW 6th, First Floor
Topeka, KS 66603

KENTUCKY
Dr. Bill Brundage
Commissioner
Office of the New Economy
Commonwealth of Kentucky
702 Capitol Avenue, Suite 256
Frankfort, KY 40601-3448

Jim Clifton
Executive Director
The Innovation Group
200 West Vine Street, #420
Lexington, KY 405-88-1049

Dr. Nancy Martin
Vice President for Research
University of Louisville
MS01-09B, 2nd Floor Jouett
Louisville, KY 40292

MICHIGAN
Emily Fleury
Research Analyst
Office of the Governor
State Capitol
Lansing, MI 48909

Dr. Curt Tompkins
President
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931-1295

MISSOURI
Quentin Wilson
Commissioner of Higher Education
Coordinating Board for Higher Education
3515 Amazonas Drive
Jefferson City, MO 65109-5717

Dr. Robert Calcaterra
President and CEO
Nidus Center for Scientific Enterprise
893 North Warson Road
St. Louis, MO 63141

Frank Stokes
Chairman
Missouri Technology Corporation
320 Union Boulevard
St. Louis, MO 63102

NEBRASKA

Dr. Kannan Grant
Associate Vice Chancellor for Technology Development
University of Nebraska Lincoln
302 Canfield Administration Building
Lincoln, NE 68588-0433

Dr. Prem Paul
Vice Chancellor for Research
University of Nebraska-Lincoln
302 Administration
Lincoln, NE 68588-0433

NORTH DAKOTA

Dr. Phil Boudjouk
Vice President of Research
North Dakota State University
1735 NDSU Research Park Drive
Fargo, ND 58105-5756

Dr. Norman Chagnon
Assistant Deputy Director, Technology Division
Ohio Department of Development
77 South High Street, 25th Floor
Columbus, OH 43215

Dr. Tony Dennis
President
Omeris
1275 Kinnear Road
Columbus, OH 43212

Johnathan Holifield
Executive Director
CincyTechUSA
300 Carew Tower, 441 Vine Street
Cincinnati, OH 45202

Dr. David Winwood
Associate Vice President for Knowledge Transfer & Commercialization
Ohio State University
Research Foundation Building
1960 Kenny Road, 2nd Floor
Columbus, OH 43210

OHIO

Dorothy Baunach
Director
NorTech
737 Bolivar Road, Suite 3000
Cleveland, OH 44115

Mark Coticchia
Vice President for Research & Technology Management
Case Western Reserve University
10900 Euclid Avenue
Cleveland, OH 44106-7004

Jon Dudley
Office of the Governor
77 South High Street
Columbus, OH 43215

Dr. William Vaughan
Ohio State University
1960 Kenny Road
Columbus, OH 43210

104 Winter
mtg